



DATE: March 15, 1985

TO: Mayor Charles Royer

FROM: Randall W. Hardy, Superintendent

SUBJECT: Update on Lake Union PCBs

BACKGROUND

Since last spring, City Light has been working on a solution for the PCB problem at the Lake Union Steam Plant (LUSP). As you will recall, equipment failure during a routine test run at the LUSP caused a spill of diesel oil into Lake Union. On April 23, 1984, laboratory test results determined that the Residual No. 6 or Bunker "C" oil stored at the plant site contained an average of circa 75 ppm PCB. The Environmental Protection Agency (EPA) was notified immediately and further testing was conducted by both Seattle City Light (May) and EPA (July) to confirm our initial findings.

City Light staff conducted research into alternative disposal options during May, June and July, culminating in a report and recommendation for treatment dated August 8, 1984. You appointed a Citizens Committee to review the City Light research, conduct supplementary fact-finding, and recommend the best environmental solution to the problem. Cost was not to be an emphasis of the Committee. Late last year they recommended that the PCBs be destroyed on-site but not in the LUSP boilers. Part of this recommendation was an explicit opposition to transporting the oil. Their reasoning was that environmentally acceptable on-site options existed and, therefore, the risks of transportation did not have to be accepted. City Light (through the Purchasing Division) released an RFP (Attachment 1) based on those recommendations and the City's liability requirements on January 2 of this year. The RFP set out a process which first screened proposals for minimum requirements, then scored the remaining on timing and cost. Proposals were received February 8. The EPA deadline for finishing cleanup is April 23, 1985. After this point the City may be liable for fines under the Federal Toxic Substances Control Act. None of our options will allow us to meet this deadline. The Department requested an extension from EPA on February 4, 1985 without stipulating a particular cleanup proposal. We have not yet received a response; in the meantime, we are moving as quickly as

possible toward solving the problem. After receiving the Citizens Committee recommendation we also briefly investigated two other options: retrofit of the LUSP and a retrofit of the Centralia plant.

PROPOSALS SUBMITTED IN RESPONSE TO THE RFP (these are referred to by firm name--see also attached summary table copies of the full proposals are also enclosed).

Accurex Alternative I This is a proposal for retrofitting the LUSP boilers. As this was explicitly disallowed in the RFP, the proposal is nonresponsive on its face. In addition, the vendor's \$225,000 bid did not really cover the retrofit of the LUSP boilers but rather a consultant study on how to retrofit the boilers.

Accurex Alternative II This is an on-site chemical decontamination proposal (\$1.7 million and 8.5 months). At first the concept is very attractive, but delving into the proposal uncovers many shortcomings. Many technical requirements of the RFP (e.g. affirmative action, bonding, spill control) were not addressed. The proposal specifically said that terms would only be agreed to in a contract with the City. We have no guarantee that the risk protections desired by the City would be negotiable within the original bid amount. We contacted Accurex after bid submittal to determine why they were not responsive and they indicated it was due to technical uncertainties about the applicability of their process to our oil and more importantly the uncertainty of the EPA permitting time line.

Riedel/Detox. This is an on-site bacterial decontamination proposal (\$1.1 million and 7 months). As with the proposal immediately above, this appears interesting but is also nonresponsive in what might be called the risk areas. Riedel's cover letter to their proposal acknowledges that their proposal is not responsive. Bonding is not included and the liquidated damage provisions of the RFP is not accepted. Basically, the proposal is not an unqualified commitment to solve the problem for \$1.1 million; it is a commitment contingent upon the success of a no-cost trial run. The proposal wants to change the payment schedule from that in the RFP to a 50 percent payment upon reaching 50 ppm (our ultimate goal is 2 ppm of PCB). This does not inspire confidence. The vendor explained that they had hedged their proposal because of the lack of a track record of their process in a situation the size and nature of ours as well as uncertainties in the EPA permit time line.

Northwest Tank. This is an on-site incinerator proposal (\$3.3 million and 18 months plus), except that, unlike Ensco's (below), this unit has not even been designed yet. It would be made to order for Seattle City Light. The proposal explicitly rejects responsibility for permit acquisition. This raises questions about the proposal's responsiveness. However, final determination about the proposal's responsiveness is moot, for even if it is responsive it is both more expensive and less timely than Ensco's responsive proposal.

PPM. This is a chemical decontamination proposal (\$6.3 million and 22 months). It is a very sketchy proposal. However, as with the case above, the issue of its responsiveness is moot because it is not competitive even if responsive.

Ensco-Tyger. This is an on-site incineration proposal (\$2.85 million and 14 months). It appears responsive to all the requirements of the RFP. Our Engineering Division has been investigating some technical questions about this proposal and has determined that it appears feasible. The incinerator has been constructed and is due for a test burn in April. As this is one of the leading options, we have paraphrased information from Ensco's proposal in the following paragraphs. The full proposal (as well as the other proposals) are enclosed.

The use of the Ensco incinerator will provide for 99.9999 percent destruction of the PCB and destruction of all materials used to decontaminate the storage tank. The incinerator technology is based on several years experience at Ensco's El Dorado, Arkansas facility which has disposed of over 100,000,000 pounds of PCB material since 1981.

The incinerator consists of five process trailers which can thermally destroy 2000 pounds (250 gallons) per hour of contaminated fuel oil. The incineration system will be located either in the Lake Union Steam Plant basement, or more likely along the lake side of the steam plant. It will be necessary in this case to close one lane of traffic on Fairview Avenue North next to the steam plant. This would probably require a permit from the Engineering, Fire, and/or Police Department.

Contaminated oil will be pumped daily from the contaminated tank to a 8000 gallon feed tank complete with spill control pan, provided by ENSCO. The contaminated oil is fed from the 8000 gallon feed tank through a hose to a valve. This valve is connected to a computer-controlled burner management system which will not allow

the incinerator to operate if predetermined operating conditions are not met.

Once in the incineration chamber, the contaminated oil is atomized with a steam jet to ensure rapid mixing and high-efficiency burning of the PCB material. A high-swirl burner is arranged at the front end of a refractory lined furnace. The furnace operates at a minimum of 1200° C (2200° F) with 2 seconds of residence time. These conditions have been shown to destroy PCB with an efficiency of 99.9999 percent. If at any time these two conditions are not maintained, the computer will stop the feed of contaminated oil to the incinerator.

The combustion gases from the furnace chamber leave the furnace and are cooled in a boiler from 1200° C to 320° C. The gases from the boiler pass through a water quench where the temperature is further reduced. Blowdown would be routed to the METRO sewer. The gases then enter a scrubber which removes the acid gas and any particulate. Emissions would consist of a steam flume. A computer monitoring emissions and other system operations will automatically shut off the flow of contaminated fuel if any EPA restrictions are violated. Complete destruction of the oil will require a continuous 5-month burn.

Security will be maintained by ENSCO personnel who will operate the incinerator on a 24-hour, 7-day schedule. If the equipment is located outside (the most likely case), there will be a fence with a locked gate and lighting. In the event of a power failure an emergency generator (running on uncontaminated fuel) assures that the incinerator system can be shut down in a controlled manner and assures that all fire protection and safety systems remain in a state of readiness.

The incinerator will require an EPA permit, approval from PSAPCA, and probably some type of compliance with the Shoreline program. At this point we think it is possible that an EIS will not be required, but we have not completed a threshold determination yet.

Conclusion. We draw four main conclusions from reviewing the proposals in conjunction with the RFP. (1) The Ensco proposal is responsive as well as competitive. (2) The PPM and Northwest Tank proposals may be responsive but are not competitive with Ensco. (3) The remaining proposals are definitely not responsive. (4) Therefore, if the decision is made to choose the PCB disposer from this RFP, we can select Ensco. The Law Department and Purchasing agree with this analysis.

CENTRALIA COAL PLANT RETROFIT - (NOT FROM RFP).

Since the response to the RFP were somewhat disappointing with respect to both number and cost, we decided to examine alternative disposal options which were outside the constraints of the RFP. The possibility of using the Centralia Steam Plant as a high efficiency boiler (HEB) for PCB-contaminated fuel disposal seemed like a reasonable option, on its face, for several reasons. First, Seattle is already a co-owner of the plant. Second, the basic requirements of an HEB are already satisfied (i.e., boiler temperature, retention time and fuel mix). And third, Centralia has the potential of providing a permanent PCB-disposal facility, available for disposal of contaminated transformer oils as well as for solving immediate problem of LUSP's Bunker "C". Therefore, City Light requested information from Pacific Power & Light Co., operator of the Centralia Steam Plant. The descriptive information which follows was primarily developed by PP&L.

Design. The project would entail an unloading shed, storage tanks, and a heated pipeline leading to one of Centralia's start-up burners. The system would be designed with safeguards so that at no time could PCB contamination threaten the electric generation of the plant. The plant would be a permanent facility for the destruction of PCB contaminated mineral oil from the various Centralia owners.

Environmental Aspects. The Centralia coal plant is a modern boiler system; there is little question that the plant could physically burn the fuel within EPA constraints. PP&L would require extensive testing for PCB and dioxins in the emissions and water systems of the plant to ensure safety. This would be done during a test burn. Permits would be required by EPA and possibly by the State Department of Ecology and Southwest Air Pollution Control Agency.

PCBs are a very high profile issue for many residents of Lewis and neighboring Thurston county. This has been due to the discovery of PCB soil contamination at several scrap metal dealers in the area, some of whom have received Seattle City Light PCBs. Washington Fairshare has used these sites to organize citizens in these counties. Therefore, we would expect strong public concern. Residents would probably have concerns about transportation hazards, perceived risk of dioxin emission, the issue of Seattle "exporting" its problem, and the permanent nature of the facility. Because of the transportation issue and the permanence of the facility, an EIS would probably be necessary, though no threshold determination has yet been made.

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(We have included a report (Attachment #3) on transportation risk from one of our consultants. The report is useful in getting a general idea of the risks involved but is not conclusive because of lack of data and the short time in which we asked them to produce the report.)

Cost/timing. PP&L estimated a burn start-up date of October based on an immediate start and no EIS. Burn time would be 60 to 90 days. Adding four months for an EIS would put completion at about April 1986. If the EIS could be done parallel to permitting, the completion date would be the end of December, 1985. Below is the estimated cost breakdown. All of these costs would be City Light's and are subject to further refinement/negotiation).

| | |
|-----------------------|--|
| \$800,000-one million | Capital facilities |
| 600,000 | O&M (at .75¢/gallon) |
| 250,000 | permitting/licensing - including test burn |
| 100,000 | EIS, (if necessary) |
| 50,000-100,000 | Transportation (estimate) |
| 50,000 (?) | Rinsing LUSP tank when done |

1.85-2.1 million Total Gross Cost

Long-term Benefit. PP&L's concept of a reasonable agreement for construction of a permanent PCB-disposal facility at Centralia funded by City Light includes a credit for a payback of Seattle's capital investment in the form of a reduced price per gallon of oil burned. At PP&L's estimated burn fees, SCL would have to dispose of 1.3 million gallons of PCB oil until its credit was used up. That is, SCL would recuperate its \$1 million capital investment (taking the high end of PP&L's estimate) after burning the LUSP oil plus another 525,000 gallons. SCL is currently paying approximately \$2 to \$4 per gallon to dispose of our contaminated transformer oils. A permanent facility at Centralia would save Seattle approximately \$50,000 per year. Stricter PCB legislation could significantly increase these long-term benefits. This benefit assumes that the present effort to site a PCB incinerator in Arlington, Oregon will be unsuccessful.

Implementation. The first step would be an agreement between Seattle City Light and PP&L for about \$25,000 to cover PP&L's expenses in pursuzng this concept. Next would be discussions with EPA, DOE, and SWAPCA to map out the required permits. Third would be the formal approval of the owners (at this time our informal indications are that none of the owners see any insurmountable problems) this would require a second contract. An EIS and permitting would probably be the next step.

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LAKE UNION STEAM PLANT - RETROFIT

It has been suggested that City Light convert the boilers in the Lake Union Steam Plant to "High Efficiency" boilers to legally dispose of the PCB-contaminated oil. (The Citizens' Committee also asked us to develop information so they could reexamine it as an on-site operation.) This may not be technically feasible. The conversion of the boilers would not be simple; there are serious technical risks associated with such a conversion which would require the attention of a qualified consultant with knowledge in boiler design. This is a specialized field. City Light does not have the in-house expertise in this field.

The areas of major concern are the design of the combustion zone for proper dwell time; the 2000 °F temperature limit of the existing refractory brick; the arrangement and protection of the proposed tangential burners; the effect of internal baffles on the boiler tubes and boiler operation; and the method of supplementing combustion air (the boilers are presently natural draft). There will also be a substantial amount of instrumentation to monitor the performance of the boilers.

At present, the boilers are rated at 825 boiler horsepower or about 29,000 lbs of steam per hour, and four boilers would be required to operate Unit 11, the smallest of the three turbine-generator units with 9 MW capacity. Each boiler uses 8.6 barrels of oil per hour. A total of 24 days of continuous operation with four boilers would be required to use up the 20,000 barrels of contaminated oil assuming the capacity of the boilers remain the same. However, the boilers are old and the condition of the tubes for continuous operation is not well known. In the event of a major breakdown the boilers may need to be retubed which would take 15 days outage at a cost of \$16,000 per boiler including the City Light labor.

For boiler conversion we estimate the services of consultant to cost \$100,000 on the assumption that the consultant's preliminary review and inspection confirms that it would be feasible to convert the boilers. We have contacted a boiler manufacturer to conduct on-site inspection and submit preliminary feasibility proposals. Results will be available shortly. Our own preliminary estimate for the conversion of four boilers is \$240,000 including the cost of engineering. This price does not include unforeseen requirements such as forced draft fans, etc. that may be called for in the engineering design. Also an additional estimated \$60,000 will be required for instrumentation to monitor the emissions from the stacks. We will have a more firm cost estimate after receiving the manufacturer's recommendation.

We estimate the physical conversion of the first "High Efficiency" boiler to be six months minimum. A conservative figure for permit processing by EPA and PSAPCA is three months. Following a trial period to verify the performance of the first converted boiler, the remaining three boilers could be retrofitted within an additional two months.

There are several important barriers to implementing this option, beside the question of engineering feasibility. First, there is an EPA requirement limiting the amount of contaminated material burned in a high efficiency boiler to 10 percent of the total fuel (40 CFR 761.60 (a) (3) (iii) (A) (4).)

The operation presented above is for straight consumption of the contaminated oil. If 10 percent blending of the contaminated oil with 90 percent clean oil is done then the process would be uneconomical because of the high price of new oil (\$5,400,000 for 180,000 barrels) and the inefficient operation of the steam plant. The value of the energy generated during approximately 250 days of continuous operation using all the oil would be \$1,080,000 at 20 mills per kilowatt-hour average selling price resulting in a net cost of \$4,320,000 just for the fuel. The cost of conversion and City Light labor would be in addition. The total duration of the process including conversion would take 21 months. EPA has confirmed in writing that this requirement would apply to LUSP. It appears that a waiver would be necessary.

A third drawback to using the present boilers is the thermal pollution of Lake Union. The LUSP has once - through cooling, that is the water made hot from the steam condensation process is released directly to the lake. In the past we have been able to obtain 90-day variances for this based on the informal understanding with DOE that operation would be rare and sporadic.

At this time on application for a new variance is still pending. A 24-day burn may be a problem in the eyes of the DOE, a 240 day burn almost certainly would be.

The fourth barrier is the public perception of the risk of dioxin emission from the LUSP. While the retrofit would go through a trial burn and be judged safe by EPA before it could start-up, there could be residual skepticism about the efficiency of the plant. It would seem this skepticism would be higher for LUSP than for a more modern device, either on site or off.

In summary, if the LUSP retrofit is feasible and we are not required to 10 percent blend, total estimated cost is \$400,000 and

time to complete the burn is 12 months. If an EIS is required, this could add 3-4 months and perhaps \$50,000-\$100,000.

OTHER OPTIONS NOT IN RFP

These would include other transportation options that had been recommended against by the Citizen Committee: other high efficiency boilers, sea-going incineration, and transportation to certified EPA incinerators.

OPTIONS FOR MAYORAL RECOMMENDATION

- A. Award to Ensco-Tyger from the present RFP.
- B. Drop all bids and pursue Centralia
- C. Reissue a slightly modified RFP. The purpose of this option would be to modify the risk protection requirements of the City to obtain responsive bids from Accurex (chemical) and/or Riedel-Detox (bacterial).
- D. Drop all bids and pursue LUSP retrofit
- E. Drop all bids and pursue other options

The various aspects of these options are set out in the matrix on the following page.

CITIZEN COMMITTEE POSITION

Last autumn the Committee had agreed that on-site incineration (mobile incinerator), chemical decontamination, or bacterial decontamination were all equally environmentally acceptable. As previously stated the committee felt it was unnecessary to run the risk of transportation. Also, they had the strong position that it was most appropriate to handle a Seattle problem in Seattle and not to push it into someone else's back yard. At their meeting of February 13, 1985, the Committee reviewed the above options and endorsed "A"--continuing in the same direction and awarding based on this RFP to Ensco--the apparent successful bidder - subject to re-examination of the LUSP retrofit option they had previously excluded. Mechanical Engineering conducted this re-examination and on February 20, 1985 the Committee re-rejected the LUSP retrofit option because of its various problems and endorsed option "A" while urging Seattle City Light to continue to pursue the time

SUMMARY MATRIX LAKE UNION STEAM PLANT PCB OPTIONS

LEADING OPTIONS

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| OPTION | COST (M) | TIMEFRAME: GETTING STARTED | TIME FRAME COMPLETION | ENVIRON- MENTAL ASPECTS | COMMUNITY PERCEPTION/ RESPONSE | RISKS TO CITY | LONG RANGE BENEFITS |
|-----------|--|--|--------------------------------------|--|---|--|--|
| A | | | | | | | |
| Enesco | 2.85 + 0.1 if EIS | Proceed w/contract directly. Least amount of EPA per- mitting uncertainty | 14 mo. + up to 4 mo. if EIS | EIS less likely than B, D Evaluated by Citizen Committee experts to have extremely high assurance of no dioxin risk. PSAPCA permit. Steam flume. Shoreline permit | Some Residual concerns about on-site burning despite new, approved unit, one-shot nature, Citizen Comm. <u>endorsement</u> | Contractor maintains risks as laid out in RFP | ---- |
| B | | | | | | | |
| Centralia | Gross 1.85 - 2.1 (0.4-0.5 could be debt- financed) includes 0.1 for EIS. Minus savings of \$ 50 k/yr. | Only moderate permitting un- certainty. De- pends highly on local response need contract with 8 owners | 9 mo. + up to. 4 mo. if EIS | EIS more likely than A, D. Trans- portation risk from ongoing operation, use by other util- ities (local burning could be viewed as envir. +) | Predict strong local opposit- ion - transpo. - ongoing nature Citizen Comm. rejection | SCL fronts cost Owners re- serve right to terminate in early (\$25,000) phase. | Perma- nent PCB disposal facility. Savings to SCL for trans- former oil disp. = \$50 k/yr |

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SUMMARY MATRIX LAKE UNION STEAM PLANT PCB OPTIONS

LESS VIABLE OPTIONS

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| OPTION | COST (M) | TIMEFRAME: GETTING STARTED | TIME FRAME COMPLETION | ENVIRON- MENTAL ASPECTS | COMMUNITY PERCEPTION/ RESPONSE | RISKS TO CITY | LONG RANGE BENEFITS |
|---|---|---|---|---|---|---|--|
| C | | | | | | | |
| Rebid, Aiming for decontam- ination Process | 1.1 - 1.7 + 0.1 if EIS | Spend time re bidding. More EPA Permitting uncertainty. Possibility of rebidding + still not reaching terms w/contractor | 8 mo. + Permitting time + up to 4 mo. if EIS | EIS unlikely. Minor risks from Sodium option | Assumed to be positive. Likely some Public info. required | City maintains dry-hole risks | Bacteria- advance valuable technology |
| D | | | | | | | |
| LUSP | 0.4 - 4.7 (depends on 10% blend- ing) + 0.1 if EIS | Spend time re- investigating whether barriers can be overcome. Could take sev- eral months with negative results | 12 mo. (est.) + up to 4 mo if EIS | EIS more likely Than A, less than B. Less assurance of absence of dioxin until test burn. Dis- charge of hot water to Lake Union - needs waiver. PSAPCA Permit. | Judged to be more negative than "A" due to old facility + waivers that will be needed | Finding out barriers are insur- mountable. Loss of time with some impact on unknown EPA fines | ---- |
| E | | | | | | | |
| Other | Various | Take most amount of time. Going back completely to square one | Various H.E.B. -? At-Sea - earliest possible start of burn - August 1 likely later. | EIS unknown. Impacts vary H.E.B. - dioxin concern, transpo. risk At-Sea - spill risk | Varies H.E.B. - local reaction to burning At-Sea - local & national groups opposed to ocean burn- ing | Varies H.E.B. - depends on terms At-Sea - Risk of potential transcontinental spill + Super- fund liability | ---- |

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3/11/85

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SEA315720

extension with EPA. The EPA timeline was very important in the Committee's deliberations. The Committee was very confident that the on-site incinerator was safe and acceptable. However, if EPA had been more flexible about timing, the Committee would not have been adverse to exploring the decontamination process further - perhaps with a pilot demonstration project. This could have saved a considerable expense and possibly save the oil for reuse. Their ongoing communications with EPA had convinced them that this flexibility would not be forthcoming. The Committee felt that the oil, as it sat in the tank, was a negligible hazard.

On February 28, the Committee reconvened at my request and examined the information on Centralia. (We had previously obtained two weeks from EPA in which to examine this option). After consideration, they rejected this option because of (1) anticipated transportation risks, (2) their perception of the likely local opposition causing delay and (3) the fact that the apparent cost savings over Ensco (estimated by the Committee as a smaller value than our figures show) did not warrant these extra risks. (Attachment #4 includes the Committee summaries from these last meetings.) The committee has expressed a willingness to participate in a public information program to explain their progress, reasoning, and recommendation in support of the Ensco proposal, to their neighbors.

CURRENT STATUS

The Department has found this to be a difficult problem. Undoubtedly, carrying out whichever option is selected will continue to be a difficult problem. We have many options; unfortunately each of them has many uncertainties. We have some hard figures, especially in the cost area, but our analysis has also dealt very much with qualitative issues. The problem seems most amenable to informed judgment rather than a numerical cost-benefit analysis.

We see the true choice is between Centralia and the Ensco on-site incinerator. The bids have shown that while the chemical and bacterial technologies have a great potential in other applications, they are too untried for this problem, with this time constraint. (If EPA were more flexible about the deadline, that would be another matter.) A Lake Union Steam Plant retrofit has too many barriers to be realistic, even if it proves to be technically feasible. As for option "E", (pursuing "other" solutions seem as another high efficiency boiler or ocean incinerator) each of the possibilities have their own problems and

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we do not believe it is prudent to jump to them in light of our EPA time constraint.

Centralia has several important advantages. Based on preliminary estimates, the cost is significantly lower than Ensco. It would also provide an ongoing service to the region as a permanent disposal facility for PCB-contaminated mineral oil. The principle uncertainty lies with the regulatory approval and, more significantly, public acceptance of the proposal. The same can be said about the mobile incinerator, but we believe it would be easier to work on the challenge closer to home. While the information we have developed on transportation does not seem to us to be as significant as it is to the Citizen Committee, it remains a lesser concern about the Centralia option.

The mobile incinerator is more expensive. It will likely also generate some amount of local concern. It does not address an ongoing problem. But it does have two main advantages over Centralia. First, City Light would be better positioned to work through the regulatory/citizen involvement process here in Seattle, than in Lewis County. Second, implementing any solution will require support from outside the City hierarchy. We have a start on that with the Citizen Committee recommendation. Though higher, we consider the cost to be more certain.

We plan to brief the City Council on this subject on March 18. After our discussion with them and further consultations with other City Departments and EPA, we expect to have our recommendation to you within the next week or so.

TC:jb

Attachments

cc: With attachments
City Council Members
Deputy Mayor Larry Meierotto
Tom Byers, Mayor's Office
Chuck Kleeberg, OIR
Gary Zarker, Office of Management and Budget, Attn: Mike Waller
Liz Edmonds, Law
Gene Jones, Purchasing
LUSP PCB Citizen Committee

ATTACHMENT #1

CTY0069309

SEA315723

REQUEST FOR PROPOSAL
SEATTLE CITY LIGHT
LAKE UNION STEAM PLANT
FUEL OIL PCB CLEANUP

January 1985

CTY0069310

SEA315724

I. INTRODUCTION

On March 14, 1984, equipment failure during a test run at the Lake Union Steam Plant caused a spill to Lake Union. As a monitoring measure, City Light tested the oil in the overflow barrel through which oil spilled to the lake and found 9 ppm PCB. While this is well under the allowable limits of 49 ppm PCB, we were concerned that the diesel oil should have even this level.

We, therefore, tested all oils at the Steam Plant which might have at some time contaminated this overflow barrel. Test results showed 1.5 ppm PCB from the diesel tank, and 5.6 and 9 ppm PCB, respectively, from the two transil oil tanks. Since none of these indicate concentrations high enough to contaminate the oil that spilled on the diesel cycle at 9 ppm, the 20,000 bbl. tank containing the fuel oil, (Residual no. 6 or "Bunker C",) was tested. On April 23, the first test results were returned. These were taken off the top and bottom of the tank, identified at 75.5 ppm and 68.5 ppm PCB, respectively. Further tests, returned on May 15, confirmed the first tests, and clearly established the unfortunate fact that we had 19,310 bbl. (811,000 gallons) of fuel oil containing an average of about 75 ppm PCB. We notified the EPA of the situation on April 23, 1984. EPA test results confirmed PCB levels of 71 ppm in July.

In August, Mayor Royer appointed a citizens' committee to advise Seattle City Light on the most appropriate means of cleanup. They

have been involved in the structuring of this RFP. Coordination with EPA has continued.

II. GOAL STATEMENT

City of Seattle solicits proposals and intends to execute a contract to solve the problem of PCB contamination of its fuel oil at Lake Union Steam Plant and leave the plant able to operate within applicable EPA regulations or requirements. The chosen solution must satisfy applicable EPA regulations or requirements (including, but not limited to, 40 CFR 761 subpart D). Decontamination or destruction of the PCBs must be performed on site. Decontamination processes must lower the PCB level to 2 ppm or below. (Note: The RFP refers throughout to a 2-ppm decontamination target. This presumes a post-treatment volume of 811,000 gallons or less. Processes leaving a volume greater than 811,000 gallons would need to achieve a proportionately lower concentration; e.g., a final volume of 892,100 gallons would have to achieve a PCB concentration of no more than 1.8 ppm.)

III. LIMITATIONS ON PROPOSALS

The City will entertain the following types of proposals:

- o A mobile incinerator (satisfying 40 CFR 761.70) located at the LUSP. Any combustion alternative must meet 40 CFR 761.70.
- o Sodium decontamination as long as the PCB level is reduced to 2 ppm or below. In this option, the oil may be left by the contractor at the plant (not required to be combusted).

- o Biological decontamination as long as the PCB level is reduced to 2 ppm or below. In this option, the oil may be left by the contractor at the plant (not required to be combusted).
- o Any other proposal which meets the goal statement and other requirements of this RFP.

The following types of proposals will not be entertained by the City.

- o Landfilling;
- o Burning in LUSP boilers (unless decontaminated first, as mentioned above);
- o Transportation of oil contaminated with PCB to a level greater than 2 ppm by any means (truck, rail, ship, etc.) to be combusted or otherwise treated offsite;
- o Sale to a party to use as fuel for an ocean-going ship outside the U.S. territorial waters, or to use as fuel in a foreign country.
- o Simple dilution;
- o Any proposal which does not result in the destruction of the PCBs or decontamination to 2 ppm or less; and
- o Any other proposal which does not meet the goal statement (II, above) or the other requirements of this RFP.

IV. REQUIREMENTS OF PROPOSAL

A. General (applies to all cleanup options)

1. Environmental Protection Agency (EPA). To be considered, a cleanup proposal must satisfy the relevant sections of 40 CFR 761. The EPA Region X has informed City Light that the cleanup process should be completed within one year after the problem was discovered (April 23, 1985). It is City Light's goal to start and finish the cleanup as expeditiously as possible.
2. Environmental/Community Risks. All cleanup proposals must minimize the risks to the community and the general environment arising from the particular cleanup. No unreasonable hazards to the environment, community, or City Light workers will be accepted.
3. Bonds. Within fifteen (15) calendar days of the award of contract, the Contractor shall provide a Surety bond in the amount of one hundred percent (100%) of the contract value, covering faithful performance of the contract and issued by a properly licensed surety company on a form acceptable to the City of Seattle.

The bond must include a brief description of the contract, the location of the work, the date of the contract, and the contract number.

4. Insurance. Prior to execution of the purchase contract, the Contractor shall provide to the Purchasing Agent evidence of appropriate insurance in accordance with "ADDENDUM #1, GENERAL CONDITIONS."

Insurance Certificate is to be returned with blue acknowledgement copy. Work cannot commence until Insurance Certificate is approved by the Risk Manager.

5. Full Proposal. The City will consider only those proposals which cover all necessary steps of a process. The City will not "fill in" missing steps in a proposal.
6. Oil Spill. All proposals must include a plan to avoid a spill of the oil and a contingency cleanup procedure (to be the responsibility of the contractor) in the event of a spill.
7. Decontamination. Those proposals which solve the PCB problem by other than decontamination in situ must include a task to decontaminate the LUSP fuel oil tank and piping in accordance with 40 CFR 761.79(a).
8. Worker Safety. The contractor must satisfy all federal, state, and local requirements for worker safety in dealing with this PCB-contaminated oil.
9. Affirmative Action/Equal Employment Opportunity. In compliance with the City's Affirmative Action Ordinance

101432, it is mandatory that all bidders be prequalified. If your firm is not already prequalified, blank Sworn Statement and Personnel Inventory Report forms are attached. Failure to complete and return the attached forms will preclude acceptance of your bid.

10. Federal, State/Local Laws. The proposal must satisfy all applicable federal, state, and local environmental, land-use, and other laws, codes, and permit requirements.
11. Previous Experience. The proposer must have previously executed a PCB-cleanup project with the technology it is proposing for LUSP. If the proposer is proposing decontamination, at least once it must have achieved PCB levels of 2 ppm or less, working with a volume of contaminated material of 1,000 cu.ft. or more.
12. Hold Harmless. The foregoing Certificate of Insurance will further be endorsed as follows: Contractor shall protect, defend, indemnify, and save the City of Seattle harm from and against any damage, costs, or liability for injury or deaths to persons or damage to or destruction of property arising out of the work performed under this purchase contract. The City will be responsible for any action which is based on its sole negligence.
13. Security. The Contractor shall be responsible for maintaining the security of the PCB destruction equipment on the site.

14. Any equipment must fit within the LUSP or immediate vicinity. (See attached site plan.)

B. Option-Specific Requirements (relevant section applies to a particular proposal).

1. Portable Incineration. The proposed portable incinerator must meet the requirements of 40 CFR 761.70.

The proposal must also include a plan and commitment by the contractor for monitoring and reporting of combustion parameters of the incinerator, as required by 40 CFR 761.70, and providing these monitoring data to the City.

2. Chemical Decontamination. If the proposal requires the use of hazardous compounds, the proposal must have a plan to avoid a spill of the compound and a contingency cleanup procedure in the event of a spill. The implementation of this spill prevention and cleanup plan will be the responsibility of the contractor. Chemical decontamination must leave the oil with 2 ppm or fewer PCBs. The contractor must provide periodic PCB testing (weekly) of the oil to show decontamination progress. The City reserves the right to take its own samples to verify progress.

If the proposer is willing to guarantee a minimum BTU level and/or volume for the oil after decontamination (status quo

gross heating value is 17,620 BTU/lb, volume is 811,000 gallons), this will be credited against the cost bid (see Section VI of this RFP). However, failure to meet this BTU and/or volume guarantee will result in a payment penalty equivalent to the difference between the initial cost credit and the credit value of the final BTU content and/or volume of oil. If the contractor is claiming a BTU and/or volume credit, it must also provide BTU level tests upon final cleanup.

If the Contractor wishes, it may sell (to a third party and keep the proceeds of such sale) the decontaminated oil as it leaves the decontamination process without returning it to the main tank. In this case, however, the Contractor:

- a. will not receive BTU and/or volume credits;
- b. must have the third party purchaser identified at the time of proposing;
- c. must conduct a certified PCB-concentration analysis on each container before it leaves the LUSP site. Each container load must test at 2 ppm PCB or less before it can leave the site. Copies of documentation of all tests must be given to City Light.

After decontamination, the contractor will be responsible for removing any other used compounds, leftover compounds,

or process byproducts from City Light property and disposing of such materials in compliance with applicable federal, state, and local requirements.

3. Biological Decontamination. If the proposal requires the use of hazardous compounds, the proposal must have a plan to avoid a spill of the compound and a contingency cleanup procedure in the event of a spill. The implementation of this spill prevention and cleanup plan will be the responsibility of the contractor. Biological decontamination must leave the oil with 2 ppm or fewer PCBs. The contractor must provide periodic PCB testing (weekly) of the oil to show decontamination progress. The City reserves the right to take its own samples to verify progress.

If the proposer is willing to guarantee a minimum BTU level and/or volume for the oil after contamination (status quo gross heating value of oil is 17,620 BTU/lb, volume is 811,000 gallons), this will be credited against the cost bid (see Section VI of this RFP). However, failure to meet this BTU and/or volume guarantee will result in a payment penalty equivalent to the difference between the initial cost credit and the credit value of BTUs and gallons actually left in the oil. If the contractor is claiming a BTU and/or volume credit, it must also provide BTU level tests and volume measurements upon final cleanup.

If the Contractor wishes, it may sell (to a third party and keep the proceeds of such sale) the decontaminated oil as it leaves the decontamination process without returning it to the main tank. In this case, however, the Contractor:

- a. will not receive BTU and/or volume credits;
- b. must have the third party purchaser identified at the time of proposing;
- c. must conduct a certified PCB-concentration analysis on each container before it leaves the LUSP site. Each container load must test at 2 ppm PCB or less before it can leave the site. Copies of documentation of all tests must be given to the City.

After decontamination, the Contractor will be responsible for removing any other used compounds, leftover compounds, or process byproducts from City Light property and for disposing of such materials in compliance with applicable federal, state, and local requirements.

V. REQUIRED CONTENTS OF WRITTEN PROPOSAL

Written proposals should be organized in the following manner, treat the following topics, and/or answer the following questions:

- A. A short statement regarding the method by which the proposer intends to meet City Light's goal (Section II of this RFP).
- B. A detailed proposed plan of action. How, physically, will the cleanup be effected? What are the various steps or tasks? What will be the layout of the treatment? Will equipment be existing, modified, or new? Who owns the equipment/facilities? How will oil be heated, handled, or pumped? How will sampling/monitoring be conducted? How will security be maintained? Any necessary modifications to the steam plant must be described in the proposal.
- C. Statement that the proposer can obtain the bond required in Section IV.A.3 of this RFP.
- D. Statements from all firms participating in your proposal indicating their commitment and capability to fill their role in the proposal. The purpose of this requirement is to ensure that the charge of Section IV.A.5 of this RFP is being met.
- E. Completion of attached Affirmative Action forms unless previously submitted.
- F. A statement showing how the proposal meets all applicable requirements of 40 CFR 761. This must include a statement about the status of any EPA-required permits.

G. A schedule of implementation of the proposal, assuming that the contract is executed on March 27, 1985. This should include:

1. When EPA and other federal, state, or local permits will be obtained, if not already in hand.
2. When work can start. (This cannot be before the necessary permits are obtained.)
3. When the 25-percent, 50-percent, 75-percent and complete treatment (including containing decontamination of the tank, if applicable) points will be reached.

Contractors will have the following liquidated damages deducted from their payment for delays from the proposed schedule that are the responsibility of the Contractor:

- o \$1,000/day for delay in cleanup initiation, as well as \$1,000/day for delay in cleanup completion; or
- o The amount of TSCA fines levied on City Light by EPA due to Contractor's delay.

Whichever is greater.

- H. A section showing compliance with the requirements of the relevant section of IV.B of this RFP (i.e., IV.B.1, 2, or 3).
- I. A statement of the post-treatment BTU/lb value and gallons of volume of the oil (if the oil is left in the LUSP) that the

proposer is guaranteeing. The proposer, of course, may envision removing the oil from the plant or may decline to guarantee a BTU or volume value. In either of these cases, the proposer may fill in "zero" for this section.

J. The fixed price the proposer is bidding for the cleanup; estimates or ranges will not be acceptable.

K. An environmental report.

1. A statement on the risk of spill of materials or other accident.

a. What might spill or what could cause an accident?

b. What environment(s) and communities might be affected?

c. What are risks of spill or accident?

d. For each of the environments and communities listed in "b", above, what are the worst case impacts of a catastrophic spill or accident of a less than complete spill or accident?

e. What measures is the proposer promising to prevent a spill or accident, or to minimize the impact of a spill or accident should one occur? This section is meant to also meet the spill hazard requirements of Sections IV.A.6 and IV.B.2 and 3 of this RFP.

- f. What are the residual (post-mitigation) risks and impacts of a spill or accident?
2. Other environmental factors. What are the expected hours of operation? Will night work be involved? What light/glare will be produced during the cleanup? What will be the noise impact during cleanup? What will be the impacts on traffic flow? What are other impacts?
- L. Previous experiences and references. The proposal must include a description of the previous experience required in IV A.11 of this RFP. The proposal must include at least one client reference (name, telephone number, address, relationship to proposer) who can verify the information.
- In addition, we require a reference which can speak to the environmental responsibility of the proposer (preferably a regulatory agency).
- M. The name of a contact who can authoritatively answer questions and give clarifications about the proposal.
- N. Also give the name of an EPA contact that can authoritatively verify the permit status and expected timing of permit acquisition.

VI. SELECTION PROCESS

These are the steps in the selection process.

- A. Tour. City Light will conduct a plant tour and question and answer session on Tuesday, January 15, 1985, from 2:00 p.m. to 4:00 p.m. The address is 1203 Eastlake Ave. E., Seattle.
- B. Screening. City Light and City Purchasing staff will review all proposals to ensure that they meet all the requirements of Sections IV and V of this RFP. Those that do not meet each applicable requirement will not be considered. Only those proposals that do meet the minimum requirements will advance to the next step. The minimum criteria will not receive a relative ranking or scoring; they either will be considered to have been met or not.
- C. Grading. City Light and City Purchasing staff will evaluate the qualified proposals against the following criteria with the associated weightings. A total of 40 points is possible:
20 points for timing and 20 points for cost.

1. TIMING SCORE

The degree to which the proposal expeditiously solves the problem (up to 20 points). This includes the waiting time for permits and the end date when the job will be complete. This will be based on the schedule committed to in

Section V.G of this RFP, as well as independent City Light verification from EPA.

Each proposal will be graded on each of two scales--a cleanup commencement scale and a cleanup finalization scale. The scores on the two scales will be added together to get a final "timing" score.

Cleanup Commencement

| <u>Pts.</u> | <u>Timing</u> |
|-------------|---|
| 0 | Cannot start with assurance until 9/1/85 or later |
| 7 | Can start with assurance before 4/23/85. |

Negative points will be calculated at the rate of -1.5 points for each month past 9/1/85 up to the assured start date.

Intermediate startup dates will be interpolated in between the above scores (e.g., starting by 7/3/85 is halfway between 4/23/85 and 9/1/85 and, therefore, would receive 3.5 pts. If the assured start date was 11/1/85, the cleanup commencement score would be -2.0 pts.)

Final Cleanup Score

| <u>Pts.</u> | <u>Timing</u> |
|-------------|---------------|
|-------------|---------------|

| | |
|----|---|
| 0 | Finished with assurance after 12/31/85 |
| 13 | Finished with assurance by 4/23/85 or earlier |

Negative points will be calculated at the rate of -1.5 pts. for each month past 12/31/85 up to the assured finish date.

Intermediate finishing times will be interpolated between the above values (e.g., finishing by 8/27/85 is halfway between 4/23/85 and 12/31/85 and, therefore, would receive 6.5 pts. If the assured completion date was 2/28/86, it would receive $-1.5 \text{ pts./mo.} \times 2 \text{ mos.} = -3.0 \text{ pts.}$)

2. COST SCORE

(Up to 20 points.) Based on cost commitment required in Section V.J of this RFP.

BTU and/or volume guarantee credits will be calculated based on the information provided in response to Section V.I of this RFP and these formulae:

\$30 credit for each barrel (42 gallons) of oil left, as long as it is guaranteed to contain at least 16,000 BTU/lb
plus

\$33 for every BTU/lb of heating value remaining above
16,000 BTU/lb

For example, a process which guaranteed an unchanged volume
and a 17,620 BTU/lb heating value would receive this
credit: $(811,000 \text{ gal} \times \$30/\text{bbl} \div 42 \text{ gal/bbl}) +$
 $(17,620 - 16,000) \text{ BTU/lb} \times \$33/\text{BTU/lb} = \$632,745.69$. Note:
This credit applies to proposal evaluation only. The
actual amount paid to the vendor will be the bid of
Section V.J.

Once BTU and/or volume credits are calculated, the cost
score will be calculated based on this formula:

$$\frac{\text{Index Value} - \text{Particular CP}}{\text{Index Value} - \text{Least Costly CP}} \times 20$$

Where CP = Cost Proposal adjusted for BTU and/or volume
guarantees, and

Where Index Value = \$4 million on the most expensive CP
received, whichever is less. Cost proposals over \$4
million will not be excluded, but will receive negative
points.

For example, if these proposals are received:

| <u>Proposal</u> | <u>Adjusted Cost (\$M)</u> | <u>Calculation</u> | <u>Points</u> |
|-----------------|----------------------------|-----------------------------------|---------------|
| A | 0.5 | $\frac{4-0.5}{4-0.5} \times 20 =$ | 20 |
| B | 2.0 | $\frac{4-2}{4-0.5} \times 20 =$ | 11.43 |
| C | 4.5 | $\frac{4-4.5}{4-0.5} \times 20 =$ | -2.8 |

The proposal with the highest sum of criteria 1 and 2 will be selected for contract negotiation.

VII. SCHEDULE.

City Light has set the following schedule.

| <u>Event</u> | <u>Date/Time</u> |
|---|----------------------------|
| RFP released | January 2, 1985 |
| Question and answer session and tour (if possible, please mail questions in advance to Tim Croll, Rm. 922, Seattle City Light, 1015 - 3rd Ave., Seattle, WA 98104). Written responses to all questions will be sent to all receiving the RFP at the time of the tour or afterwards. | January 15, 1985, 2-4 p.m. |
| Deadline to receive proposals. | 5:00 p.m., 2/8/85 |
| Proposal Evaluation. | From 2/9/85 to 2/23/85 |
| Selection of contractor. | 2/23/85 |
| Anticipated award of contract. | 3/15/85 |

VIII. QUALIFIERS AND CONTRACTING CONSIDERATIONS

- A. City will not reimburse the cost of any work, including the preparation of proposals, site visits, sample tests, permits, etc., done prior to contract execution.
- B. City may request interviews or ask questions of the proposers as it sees fit; however, if one proposer finalist (i.e., has passed screening stage) is interviewed, all will be. City Light reserves the right to seek clarifications of the proposal from the proposer, prior to selection.
- C. City reserves the right to seek independent verification of statements of proposers dealing with their process and/or permit timing from EPA, and, accordingly, to revise projected permit times in the proposal schedule in Section V.G and to revise the timing score.
- D. After contract award and the contractor has its permit from EPA, EPA liaison will be the responsibility of the City.
- E. City encourages joint ventures if that will allow more equipment to expeditiously solve the problem. Also, proposers do not necessarily have to limit themselves to one proposal, if they have alternative techniques or pieces of equipment that are significantly diverse.
- F. All proposals will be considered by City to be public documents after the proposal deadline. Any proposals that carry a

condition of confidentiality will be rejected. City believes proposers can make a reasonably descriptive and informative proposal without revealing trade secrets.

G. Payments will be made on the following schedule:

| <u>Milestone</u> | <u>Cumulative Amount Paid</u> |
|--|-------------------------------|
| 25 percent of PCBs destroyed | 20 percent of bid amount |
| 50 percent of PCBs destroyed | 40 percent of bid amount |
| 75 percent of PCBs destroyed | 60 percent of bid amount |
| Destruction goal reached, tank and piping decontaminated (if necessary), equipment, material, and by-products or waste products removed and BTU/volume certification, if applicable. | 100 percent of bid amount |

The Contractor will submit invoices at each milestone point, with proof the milestone has been reached. City Light will make payments within 30 days of receipt of an acceptable invoice.

H. The City reserves the right to reject all proposals and request new proposals.

ATTACHMENT #2

CTY0069332

SEA315746

LUSP PCB CLEAN-UP PROPOSAL

SUMMARY

| PROPOSAL NAME | WITHIN RANGE OF C'MTEE. ALTRN.? | OTHERWISE SATISF. RFP?* | PRICE \$ M's | TIMING (MOS) | REMARKS |
|---------------|------------------------------------|----------------------------|------------------|-----------------------|--|
| PPM | Yes (Sodium) | ? | 6.3-BTU Credit | 22 Mos. End 1/8/87 | Sketchy on details. |
| ENSCO-TYGER | Yes (Mobile Inciner) | Yes | 2.85 | 14 Mo. 5/15/86 | Thorough proposal. The bird in the hand. |
| ACCUREX I | No (LUSP Boiler) | No | 0.225+ | 6.5 Mo. 10/1/85 | Not responding to information req. of RFP. |
| ACCUREX II | Yes (Chemical Destruc.) | No | 1.722-BTU Credit | 8.5 Mo. 12/1/85 | Not responding to information req. of RFP. Little detail. |
| NW TANK SVC. | Yes (Incin) | ? Maybe not. | 3.3 | 18 Mo. + ** | Incinerator does not now exist. Leaving permit aquisition to City! Does not include trial burn. Heavily conditioned. <u>May not</u> <u>meet previous experience</u> <u>requirement.</u> |
| RIEDEL/DETOX | Yes (Bacteria) | No | 1.1 + | 7 Mo. 10/15/85 | Note many conditions. No liquidated damages. Bond is extra \$. Free demonstration first. Puts risk on City. Wants 50% payment after 50 ppm required. Technical require- ments for previous <u>may</u> be problem. |

** Does not include permit time.

* Based on preliminary evaluation

CTV0069333

SEA315747

ATTACHMENT #3

CTY0069334

SEA315748

LAKE UNION STEAM PLANT OIL TRANSPORT ASSESSMENT

RISK AND MITIGATION

WHITE PAPER

MAR 8 1985

Prepared for

Seattle City Light
Environmental Affairs Division
Seattle, Washington

Prepared by

Tetra Tech, Inc.
Bellevue, Washington

March, 1985

CTY0069335

SEA315749

INTRODUCTION

Seattle City Light is investigating the possibility of transporting 811,000 gallons of Bunker C oil, contaminated with 75 ppm PCB, from its Lake Union steam plant to a steam plant in the Centralia, Washington, area (Lewis County). In considering this option for final removal/disposal of the oil, City Light requested Tetra Tech to provide background information pertaining to the following questions:

- What is the risk of spill or accident in the shipping of such a hazardous waste; are there any industry statistics bearing on this matter?
- What is the total risk of upset from shipping that many truckloads of oil? Is there any difference of few/large trucks vs. many/smaller trucks?
- What would be involved in cleaning up a spill if one occurred: what activities and what cost?
- What mitigation measures are regularly taken in such shipments? What are the regulatory requirements for just the aspect of shipping?

This brief white paper represents the result of a "quick-response" investigation of available literature and Federal/state sources to shed additional light on these issues. The Citizen's Committee is encouraged to refer to sources listed in the reference list for additional background or detail.

GENERAL RISK ASSESSMENT

During the past 10 years, the U.S. Department of Transportation (DOT) has tried to collect reports whenever a truck carrying a hazardous material has been involved in an accident. DOT has instituted the Hazardous Materials

Incident Reporting System (HMIRS) as part of this effort. The Environmental Protection Agency (EPA) has also made efforts to collect information regarding hazardous materials spills. These figures probably represent only a percentage of the total number since EPA must rely on the truck company to report the spill/accident to them. There are few statistics dealing solely with accidents. Most statistical models were developed to predict the number of deaths as a result of an accident involving hazardous materials. Some models also predict how often these deaths will occur. This summary focuses primarily on the Puget Sound area, but also compares local statistics with the national figures.

In 1981, Battelle Pacific Northwest prepared a report entitled "Hazardous Materials Transportation Risks in the Puget Sound Region". The modes of transportation discussed were rail and highway. Table 1 lists the commodities shipped by truck in the central Puget Sound region. According to the national statistics, the risk of a death resulting from an accident when shipping hazardous materials is approximately 9.1×10^{-2} deaths per year, or one death every 11 years. Accordingly, the average risk to an individual is very low when compared to all accidental deaths in the United States. (The risk to an individual of being involved in a motor vehicle accident is 1 person in 4,000 persons.) For the central Puget Sound region, an event involving hazardous materials with one or more fatalities would occur on the average of once in 400 years.

In 1979, a total of 15,978 transportation-related spills involving hazardous materials in the United States were reported to DOT. Of the 15,978 incidents, 20 resulted in death and 697 resulted in injury. That is, less than 1 percent resulted in death and only 4.4 percent resulted in injury. The deaths and injuries reported may have been as a result of the accident or directly related to the hazardous material being shipped.

The EPA has also collected incident reports. These figures are not exclusive of the DOT reports, and many may overlap. From October, 1978, through September, 1979, 258 hazardous material-related incidents involving trucks were reported nationally. In comparison, 363 accidents involved rail and 11 involved aircraft. During this same period in EPA Region X,

TABLE 1. COMMODITIES SHIPPED BY TRUCK IN
CENTRAL PUGET SOUND REGION IN 1979

| | Tons/yr |
|--------------------|---------|
| Nonflammable gas | 45,996 |
| Flammable gas | 13,415 |
| Flammable liquid | 710,586 |
| Combustible liquid | 470,397 |
| Flammable solid | --- |
| Oxidizers | 7,395 |
| Poison B | --- |
| Radioactive | --- |
| Corrosives | 157,414 |

four incidents were reported and of those only one was in the Puget Sound area. From October, 1977, through September, 1978, nationally 223 incidents involving trucks were reported, while 310 involving rail were reported. During this same period in EPA Region X, six incidents were reported and only two of those were in the Puget Sound area.

The question of shipping hazardous materials in few/large trucks vs. many/smaller trucks has been raised frequently in the past. Regarding the situation involving few/large trucks, in the event of a spill, the problem would be much greater. It would be more expensive to clean up and dispose of the material because a larger area may become contaminated. The severity of the accident would also be a consideration. A larger problem would result if all the material spilled rather than a small portion of the load. Some trucks have as many as four compartments in one tank. If a spill resulted from a puncture after an accident, it is possible that the material in only one compartment would be released. Using a large tank truck with multiple compartments may reduce the risk of a major spill while still hauling a large quantity of material. A smaller load would mean less material contaminated and would probably be less expensive to clean. The impacted area would probably not be as great as a large quantity would affect. To ship 811,000 gallons of oil in 3,000 gallon tank trucks would require at least 271 trucks. If it were transported in 5,000 gallon tank trucks, 163 trucks would be required. If a tank truck with three 3,000 gallon compartments were used, approximately 92 trucks would be required.

DESCRIPTION OF SPILL CLEANUP ACTIVITIES AND COST

It is difficult to anticipate what equipment and activities would be necessary to clean up a spill on a highway as a result of a truck accident. The best way to approach the question is to determine what type of areas may be affected. By determining a specific route the truck would use, one would then be able to anticipate where the waste might flow once it was spilled from the truck. Another method to determine cleanup equipment and activities is to use actual case histories. Three different actual case histories will be discussed.

Potential Spill Environments

A number of different scenarios should be reviewed to estimate the necessary cleanup effort. The amount of material must also be considered. A larger spill will require more manpower and work effort. For this section, the scenarios involve spills of 500-gallons or less. The initial emergency is the most difficult to mitigate. Remedial actions would be similar for most the situations encountered. Actions may include the following: sampling the spill site and surrounding area, excavating contaminated asphalt and/or soil, resampling until the area is considered "clean," and replacement of removed materials.

A simple situation would be if a truck were to have an accident on a flat, asphalt highway with no sewer inlets, drainage ditches or bodies of water within a 1,000 ft radius, the initial cleanup would be relatively straight forward. It would mean using sorbent material to absorb the oil and then properly dispose of the sorbent material. The remedial activities may include sampling the asphalt and surrounding soil. If either area was contaminated, it would need to be excavated and resampled until it was found to be "clean."

Another more complex situation would be if an accident occurred on a flat, asphalt highway near a sewer inlet or drainage ditch. In addition to the actions discussed in the previous situation, the oil would have to be deterred from entering the sewer or drainage ditch. Sand is the most common method used. The local sewer plant would have to be notified if any entered the inlet, and cleanup efforts might include underground sewer systems. In addition to the asphalt, if a drainage ditch was contaminated it may have to be sampled, excavated, and resampled until it is "clean."

If an accident occurred near a small stream and the oil entered it, sorbent could be used to clean it. If it were a fast moving stream, sorbent would also have to be placed down-stream of the spill area. A large body of water may require an oil boom in addition to sorbent material. Remedial

activities would include sampling soil, water, asphalt, and sediment. Possibly excavating soil, asphalt, and sediment; and filtering the water.

It is difficult to determine exactly what is needed in the event of an emergency. By mapping the anticipated route and defining the worst case situation, a contingency plan could be developed. Possible mitigation efforts will be discussed in more detail.

Case History Events

The following four situations describe the activities undertaken during a spill involving PCB contaminated oil.

Idaho Power Company--

Recently a transformer containing PCB contaminated oil fell off a truck during transport. A small quantity of the material contaminated the soil and the asphalt in the area. The oil was sampled and found to contain more than 50 ppm PCB. EPA required Idaho Power to remove approximately 100 sq ft of oil stained pavement in addition to the contaminated soil. Samples were collected near the spill area to determine the extent of contamination. A cost estimate was not available.

PCB, Incorporated--

In August, 1984, a transformer containing 13 gallons of oil (300 ppm PCB) fell off a flatbed truck onto the freeway in Portland, Oregon. PCB, Inc. hired a local contractor to clean up the spill. Both the spilled material and contaminated asphalt were removed the same day. EPA estimated 600 cars passed through the spill area before the highway was closed and requested PCB, Inc. to arrange setting up an area to wash cars that passed through the area. The interiors and exteriors of the cars were washed and sampled. The contaminated wash water was collected and stored until ultimate disposal. The cleaning operation continued for 4 days.

PCB, Inc. would not give an estimate of the costs. In addition to hiring a cleanup contractor, PCB, Inc. also had a retained consultant present at the site.

Terminal 115--

In May, 1984, a transformer containing PCB contaminated oil leaked inside a truck at Terminal 115 in Seattle, Washington. An estimated 100-gal of oil spilled from the transformer. Some of the activities undertaken for this accident included plugging the storm drain and lining another truck with visqueen in preparation to receive the transformers from the truck involved in the spill. The soil and debris contaminated with PCB was drummed and the area was sampled to determine the effectiveness of the cleanup effort. The manager of the company who leases the property from the Port of Seattle indicated that he wanted the contaminated asphalt removed. Approximately 220 ft³ of asphalt was removed.

Western Processing--

During the summer of 1984, the U.S. EPA and responsible parties involved at the Western Processing site in Kent, Washington, were transporting a large quantity of hazardous material. In general, most of this material was sent to Arlington, Oregon, for disposal. The flammable liquid was sent to northern California. A total of 4,970 truckloads of material left the site. The quantity of the loads varied. In August, one truck driver had an accident en route to Arlington, Oregon. Chem Waste Management, Inc., had provided the drivers with an operating manual that included a map to follow. The driver decided to take an alternate route. The accident occurred during daylight hours. The driver was also speeding. If the driver stayed on the correct route, the accident would probably not have happened. This incident was the only accident reported during the removal phase of the 4,970 loads.

The following observations regarding spill cleanup are from Woodyard et al. (1983):

The cleanup of PCB spills is addressed directly and indirectly throughout the 1979 and 1982 rules. The August, 1983, "Question and Answer" book published by EPA provides the most recent interpretation of its regulations. The booklet addresses three questions on the subject: spill reporting, what happens upon reporting a spill, and what should be done to control or clean up a spill. The answers to these questions frame, in part, the agency's policy. It is open to interpretation, and thus explains the great variety of spill cleanup "standards" experienced today.

Concerning the question of spill cleanup, the EPA suggests the following steps: 1) report spill, 2) control the spread of spill by damming or diking the leak (a high priority should be given to spills posing a threat to water), 3) "Once contained, cleanup can be simply the removal and subsequent disposal of contaminated soil and debris." EPA further notes: "In some cases special filtration or PCB sorbents may be required;" and 4) "Since the levels required for cleanup sometimes vary, depending on the region (state) in which the spill occurred, regional PCB experts should be contacted to obtain guidance on the extent of PCB spill cleanup." That is the extent of what the agency has to say about the degree of spill cleanup. They do provide a list of experts and phone numbers.

So where does all this leave the PCB owner attempting to clean up a PCB spill? Since the promulgation of rules in 1979, many utilities have felt that cleaning up to 50 ppm would be an acceptable level of cleanup. This level could be found more from an interpretation of the 1979 regulations than an explicit statement. Many EPA regions were advising, and continue to advise, utilities that this is an acceptable cutoff. EDF vs. EPA suits have undoubtedly had some impact on the state of the situation today, leaving a wide variety of approaches and standards, primarily because of the questioning of the 50 ppm standard as justified and supported.

Meanwhile, there have been a number of test cases with a bearing on the degree of spill cleanup. The agency has prepared an enforcement strategy and interpretation of the PCB regulations that indicates that the agency can enforce a cleanup to background standard, and is endeavoring in some regions to do this. EPA Enforcement Headquarters insists that the regulation

provides them with the authority to proceed on a background standard, i.e., any exposure to PCBs is significant, however inconsistently it is applied.

Certainly, a major contributor to the confusion surrounding PCB spill cleanup is the variation in policy between EPA headquarters, regional offices, and state agencies. Given the lack of a scientific basis for any "one number" cleanup cutoff, it would appear difficult to justify the background PCB concentration as a cleanup level based on arbitrary local limits.

A straw poll of EPA regional PCB cleanup policies was conducted in 1983 and is shown in Table 2. Note the variation in both cleanup level and surface treatment requirements.

This broad range of spill cleanup requirements raises an important issue: as long as no one can come to grips with a scientifically-based cleanup standard, perhaps a practical standard based on practice and performance is most appropriate (assuming that a standard will indeed be instituted). Such a standard might address sampling, a practical field approach and perhaps a minimum cleanup level standard.

The Edison Electrical Institute Utility Solid Waste Activities Group PCB Committee has formed a Spill Cleanup Task Force, to address the specific degree of cleanup issue. The goal of the Task Force appears to be the EPA consideration of a procedure standard for cleanup rather than using a concentration-based performance standard, and to determine whether a procedural standard is feasible and accurate enough, in an effort to permit practicality to enter the decision process. [EPA has also assigned consultants to investigate the definition of cleanup criteria.]

COST OF CLEANING UP HIGHWAY-RELATED PCB SPILLS

As noted earlier, few transportation-related case histories include reliable accountings of cleanup costs. Estimating cleanup costs is further confounded by potential extenuating circumstances, including contaminant spreading to drainage systems or by other vehicles, changes in regulatory requirements, variations in disposal fees, etc. Cost estimates may or

TABLE 2. SELECTED EPA REGIONAL PCB SPILL CLEANUP REQUIREMENTS (1983)

| EPA Region | Soil | Cement/Asphalt | Other |
|--------------|---------------------|--|------------------|
| Headquarters | | | |
| 1 | 50 ppm ^b | Concrete: solvent Asphalt: remove | cbc ^a |
| 5 | 1-5 ppm | Concrete: solvent (3) Asphalt: remove | cbc |
| 6 | 50 ppm | Concrete: wash Asphalt: remove | cbc |
| 9 | 50 ppm | Concrete: remove Asphalt: remove | cbc |

^a Each instance evaluated on a case-by-case basis.

^b Initial concentration.

Reference: Woodyard et al. (1983).

may not include requirements for a second or third sampling and cleaning situation. The cost of mobilization/demobilization for a cleanup crew is sometimes excluded. In some situations, slow laboratory turn around and agency approval will require removal and reactivation of the field crew, at a potential cost of thousands of dollars for each iteration. If the accident involves fire, analysis for tetrachlorodibenzo-p-dioxins/tetrachlorodibenzo-p-furans will dramatically increase the analytical (and probably the cleanup) cost.

In order to provide some idea of costs that might be involved in a highway cleanup, the unit costs in Table 3 have been used to generate total costs for two hypothetical incidents described in Table 4. Neither case includes long-term remedial work, contamination/cleanup of other vehicles or adjacent waterways, subsurface sampling/analysis, or any other circumstances not accounted for in Table 3.

POTENTIAL MITIGATION MEASURES

Mitigative measures for this type of shipment would depend on the route the drivers anticipate using. There are various types of hazards one would want to anticipate. It is imperative the routes are planned in advance, the driver is aware of safety procedures and proper emergency response activities are implemented.

There has been much written concerning the risk assessment and risk reduction when shipping hazardous materials. EMSERV, Inc. developed a risk reduction/spill prevention program in 1976. Spill prevention measures included personnel awareness for the health and safety aspects of the material transported. The risk reduction measures included scheduling, routing, and escorting.

As stated earlier, spill prevention is accomplished by personnel awareness. The drivers should be made aware of the hazards of the material they are carrying. A driver's manual is probably the most effective method to distribute information. The manual should include information on spill reporting, prevention, and response. The driver should know what federal

TABLE 3. UNIT COST ASSUMPTIONS USED IN HYPOTHETICAL HIGHWAY
CLEANUP ESTIMATE (1985)

| | Cost(\$) | Units |
|------------------------------|--------------|-------|
| Crew costs | | |
| Supervisor | 55.00 | hour |
| Crew member | 29.00 | hour |
| Equipment | 400.00 | day |
| Mobilization | 900.00 | each |
| Excavation costs | | |
| Asphalt | 1.80 | sy |
| Soil | 2.40 | cy |
| Roadway replacement | 6.00 | sy |
| Displacement costs | | |
| Bulk disposal | 240.00 | cy |
| Drum disposal | 75.00 | each |
| Sampling costs | | |
| Sampling crew | 70.00 | hour |
| Equipment | 200.00 | day |
| Mobilization | 250.00 | each |
| Sample Analyses | 125.00 | each |
| Miscellaneous | 10% | |
| Planning and engineering | 25% of total | |
| General/administrative costs | 10% of total | |

TABLE 4. CLEANUP COSTS: TWO HYPOTHETICAL INCIDENTS

| | Small | Large |
|--|-------|-------|
| Duration of cleanup (days) | 3 | 10 |
| Area of asphalt contaminated (sy) | 20 | 200 |
| Volume of contaminated soil (cy) | 4 | 40 |
| Drums of contaminated debris | 3 | 15 |
| Sampling duration (days) | 2 | 15 |
| Number of samples | 20 | 60 |
| Numbers of mobilizations | 1 | 2 |
| "Small" incident: approximately \$22,000 | | |
| "Large" incident: approximately \$77,000 | | |

and/or state agencies to contact in the event of an emergency, as well as who to contact from the company. The manual should also direct the driver as to how to minimize human exposure and environmental exposure. A product familiarization sheet has been used by various companies to make the driver much more aware of the chemicals they are transporting, and how to respond intelligently to a spill. In addition to the drivers manual and familiarization sheets, a regularly scheduled safety meeting should be instituted. The meeting should just review some of the hazards involved and it gives the drivers an opportunity to voice complaints or ask questions.

Scheduling is very effective for risk reduction. If the receiver can accept the material at any time, one may want to consider sending the shipment during non-peak hours of the day (i.e., not during rush hour traffic) or after rush hour if the receiver can accept it at night. During the week, there are probably fewer drivers out at 8:00 p.m. than at 2:00 p.m. One may want to consider when responders are available. Would it be more difficult to have a cleanup contractor arrive after hours? One major drawback to having drivers take material out after dark is that they may be tired themselves or the cleanup contractor personnel are tired once they arrive at a spill. It is important that all parties involved in shipping and cleanup be fully aware. It is also more difficult to see where the material has gone once it has spilled. Another method to reduce risk is to project the anticipated route. This will assist in avoiding densely populated areas, urban areas, and high-accident areas. If possible, the route should avoid sensitive waterways. Routing will also help drivers and potential emergency responders be aware of possible problems in the event of a spill. As alternate method or in addition to routing, an escort may prove very valuable. Escorts would be able to provide the driver with immediate assistance in the event of an accident. In the event of a spill, this may be a very costeffective mitigation measure.

In order to transport bulk quantities of 75 ppm PCB contaminated oil within the guidelines of DOT, vehicles must be marked on each end and each side with the Mark M_L. In addition, the Uniform Manifest must also be filled out properly and be in the possession of the driver if requested. An EPA inspector may check the transport vehicles for proper marking and

may photograph unmarked or improperly marked vehicles. An EPA inspector may also sample the vehicle.

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ATTACHMENT #4

CTY0069352

SEA315766

Summary of the Lake Union Steam Plant Advisory Committee Meeting

February 13, 1985

Committee Members Present:

Ellen Hansen, Chair
Dave Eaton
Herb Gaskill
Jim Knight
Chris Luboff
Dennis Vidmar
Jim Woods

Committee Members Absent:

Ruth Coffin
Kenneth Stuart

Staff Present:

Liz Edmonds
--Law Department
Chuck Kleeberg
--OIR
Mike Waller
--OMB
Tim Croll
Claire Dyckman
--Environmental Affairs
Jim Flether
--Operations
Kathy Sugiyama
--Community Relations

Public Present:

Charles Brown
Lary Penberthy
Jack Stone

Larry Penberthy of Penberthy Electromelt presented his objections to the committee's recommendation for on-site decontamination stating that it is environmentally unsound to set up a "chemical factory" so close to a populated area. He felt that it would be better to take the contaminated oil to a secluded area for decontamination. He also objected to the nature of the request for proposals because of the exclusion of a number of different processes. Penberthy also commented that he feels that the oil at the steam plant is so dilute that it should be burned for energy. The committee and Penberthy further discussed the issue of on- or off-site disposal of the oil. Members stressed that EPA constraints influenced their recommendations.

The committee next discussed the six proposals received. Tim Croll distributed a summary of the proposals and a listing of options for proceeding with the proposals. Croll's summary included the following information for each proposal: whether the proposal was within the range of alternatives as listed by the committee, whether the proposal otherwise satisfied the RFP, price, timing, and remarks.

The proposals ranged in price from \$1.1 million to 6.3 million and the timing of clean-up ranged from seven months to 22 months.

Croll listed three options for proceeding with the contracting process:

- Award a contract to one of the six proposers,
- Reissue the RFP, bending the risk requirements as much as prudent, or
- Reissue the RFP, broadening the scope of acceptable technologies.

Croll reported that the City Council will make the final decision on the clean-up. An ordinance will be filed on March 6 which will authorize City Light to contract for the clean-up and to indicate the source of funds. The mayoral approval process is scheduled for the week of February 25. Croll hopes to have a City Light recommendation developed by Friday, February 22. He requested that the committee participate at the City Council hearing and make a recommendation on how to proceed before the department recommendation is made on February 22.

There was discussion about the possibility of retrofitting the boilers at the steam plant to burn the contaminated oil. The committee requested that Croll investigate the feasibility of retrofitting the steam plant boilers and report back to the committee at a meeting next Wednesday, February 20. The committee agreed that they would then make a recommendation. There was a consensus that the only acceptable options for proceeding are to award the contract to one of the six proposers or pursue the option of retrofitting the steam plant boilers.

The meeting adjourned at 8:45

Summary of the Lake Union Steam Plant Advisory Committee Meeting

February 20, 1985

Committee Members Present:

Ellen Hansen, Chair
Jim Woods
Herb Gaskill
Jim Knight
Chris Luboff
Dennis Vidmar

Committee Members Absent:

Dave Eaton
Kenneth Stuart

Staff Present:

Liz Edmonds
 --Law Department
Mike Waller
 --Office of Management and Budget
Tim Croll
Claire Dyckman
 --Environmental Affairs
Jim Fletcher
 --Operations
Tom Miller
 --Engineering

Public Present:

Larry Penberthy
Bob Healy
Jim Nolan, of PSAPCA
Paul Bolson
Steve Sanger
Dave Schaefer

Tim Croll distributed a memo from C.T. Rockey, SCL chief engineer to Superintendent Hardy on the feasibility of retrofitting LUSP as a High Efficiency Boiler and burning the PCB-contaminated oil there. Croll posed the question of whether the EPA would require SCL to blend the PCB-contaminated oil 10 to 1 with other oil before burning in a high efficiency boiler. Croll said his information from EPA staff was that the requirement would apply. Tom Miller said that if the requirement did not apply, and if the light-duty brick at the steam plant proved sufficient to withstand the heat, the oil could be burned at the steam plant for a net cost of about \$200,000.

Members asked how flexible EPA was on the 10 to 1 requirement, and what its purpose was, and whether it would be applied to Bunker C oil.

Croll said SCL had been told by staff that the regulation would apply. He said the regulations allow SCL to propose alternative methods, but the EPA wouldn't rule on their acceptability until SCL submitted detailed plans; for that reason it isn't possible to know at the present time whether SCL could get an exception to the 10 to 1 rule. Jim Nolan pointed out that SCL would also need an exception from the requirement that HEB's (high efficiency boilers) be rated at a minimum of 50 million BTU's per hour.

Hansen asked each member to give their views on whether the City should pursue establishing a HEB at the steam plant. Gaskill said he questioned EPA's interpretation of the regulations. However, he said he was bothered by the uncertainty and unknowns involved in pursuing an HEB. Luboff agreed, saying she

had strong reservations about retrofitting LUSP with an HEB. Vidmar said he also agreed, but wondered whether the City could pursue a parallel path of applying for an exception. Miller said EPA would need detailed design information to judge any claim for an exception. Coffin abstained because she had not attended the previous meeting.

Knight said it was most logical to use the oil the way it was intended, if it is not environmentally harmful. He said he felt trapped by regulations designed for a different volume and different contamination, and suggested the committee should push EPA on the illogic of the regulations. Woods reiterated points from his report to the committee on HEB's last November. He said the pro's of a HEB were that the oil was used, that it was EPA's preferred method if available and if no environmental risk can be shown. He said the cons were that the cost quoted at that time was as much as \$3 million, according to SCL, that there is no HEB in the western US with the capacity to burn LUSP oil within the given time frame, that strict monitoring is needed to meet environmental concerns, that a continuous burn of 3 to 4 weeks would be required, and that public acceptance of such a burn is doubtful. Woods also cited transportation concerns if the oil is transported to a distant HEB, and concerns about the schedule if using an HEB meant applying for an exception to the regulations. He pointed out that after considering these pros and cons, the committee had previously decided that use of an HEB was infeasible.

Luboff moved that the committee endorse option A, presented to them by Croll at the previous meeting. Option A is to award the contract to the apparent successful bidder based on the RFP that was issued. The committee unanimously endorsed option A and advised City Light to continue to press EPA for a schedule extension.

Hansen said she would contact the subcommittee which was considering health effects of previous burnings at the plant regarding a report from them. No definite next meeting was set.

Summary of the Lake Union Steam Plant Advisory Committee Meeting

February 28, 1985

Committee Members Present:

Ellen Hansen, Chair
Jim Woods
Herb Gaskill
Jim Knight
Chris Luboff
Dennis Vidmar
Ruth Coffin
Dave Eaton

Committee Members Absent:

Kenneth Stuart

Staff Present:

Liz Edmonds
--Law Department
Mike Waller
--Office of Management and Budget
Tim Croll
Claire Dyckman
--Environmental Affairs
Jim Fletcher
--Operations
Ginny Sharp
--Energy Resources Planning & Mgt.
Kathy Sugiyama
--Community Relations

Public Present:

Gil Haselberger
Bob Ely

The committee met to hear a briefing from Tim Croll and Ginny Sharp on the requested information from Pacific Power and Light about using the Centralia Coal Plant for disposal of the contaminated oil from the Lake Union Steam Plant.

Chris Luboff asked why Superintendent Hardy wanted the committee to consider the Centralia Coal Plant in view of the fact that the committee had previously ruled it out as a possibility because of the risk factor involved in transporting the contaminated oil from Seattle to Centralia. Croll said that Hardy was interested because it could be cheaper to use Centralia than to award the contract to the apparent successful bidder for the clean up. Ginny Sharp added that it was also in response to the issue of unproductive incineration of the oil. City Light had not made any commitment but wanted to look at the Centralia option.

Herb Gaskill was concerned about the legality of changing the process for selecting how to dispose of the oil. Croll pointed out that the committee would not be liable in any case and the department is only contemplating a deviation from the original bid process. If the department actually decides to deviate, it will make certain that it is done legally. The request for proposals reserved City Light's right to reject all bids.

Croll and Sharp reiterated information received in a briefing from a representative from Pacific Power and Light, the operating utility of the Centralia Coal Plant.

The plant consists of two units, each with a capacity of 650 megawatts. The plant is located 10 miles from downtown Centralia.

The technology for adjusting the plant to burn the contaminated oil is not difficult. The cost would run from \$800,000 to \$1 million to build the facility and approximately another \$250,000 for licensing and a test burn. There would also be a \$25,000 up front cost if an agreement were reached between City Light and PP&L to pursue this project.

There are eight owners of the plant and all eight would have to agree to the project in order for it to proceed. PP&L would like to have already discussed the steps of the permitting process with EPA and DOE before asking for approval of the owners.

City Light would have to fund both the construction and the licensing.

The facility would be permanent and could be used by others in the region. The facility would include a tank, pumps, a pipeline to one of the burners and an unloading facility in a fully-contained building with mechanisms to insure that the rest of the plant would not be contaminated in the event of a spill.

Croll said that, according to the PP&L representative, it would take between 60 and 90 days to construct the facility and about 90 days to burn all of the oil. PP&L estimated that the facility could be ready to begin burning the oil in September or October of this year.

The cost to burn contaminated oil would be \$1.50 per gallon for owners of the plant, \$3 per gallon for other parties. City Light's charge would be 75¢ per gallon until the 75¢ per gallon credit allowed City Light to recoup its capital costs. City Light would have priority to burn the Lake Union Steam Plant oil. All dollar figures are preliminary and subject to negotiation.

The PP&L representative emphasized that the plant's owners could back out of the deal if there were regulatory or community problems with the project. This would occur after City Light had invested money in the project. Sharp said that she understood this off-ramp existed only until the owners had approved the project.

Ellen Hansen pointed out that at 75¢ a gallon, the cost to burn the PCB oil would be \$600,000 plus an additional \$200,000 (ballpark figure given by Croll) to transport the oil. The costs added to the other cost totals over \$2 million; and this doesn't include the cost to clean the oil tank at Lake Union once the oil is removed.

The question was raised regarding the necessity of conducting an Environmental Impact Statement. Liz Edmonds responded that while an EIS may not be required, City Light would probably want to go through some public review process to assure that any risks are addressed.

There was discussion about why City Light, in essence, opened up the bid process again by soliciting a "proposal" from Centralia. Why not look at detoxification or at-sea incineration too. Two vendors were present who made brief presentations on their technologies; detoxification and at-sea incineration.

Croll pointed out that PP&L was not making a proposal, but was rather furnishing information. It is true that City Light solicited the information.

Luboff moved to re-open the bid process to enable decontamination process firms to bid. The committee voted 7 to 1 against the motion.

The committee was polled on what its recommendation to City Light should be. Consensus was reached that City Light should proceed with making a selection from the proposals received by the original deadline. The committee was not in favor of considering the option of using the Centralia Coal Plant for disposal of the PCB-contaminated oil. They cited three reasons:

- 1) it is not substantially cheaper than the apparent successful bidder;
- 2) it is not environmentally sound; and
- 3) there is a dry hole risk.

This was the final meeting of the committee. Further committee work is planned on the health impact of previous burnings. The meeting adjourned at 9:30 p.m.